ipd4400magridipTES-10

Defense Information Infrastructure (DII)
Common Operating Environment (COE)

Installation Procedures (IP)
for the
Grid Field API (MAGRID) Segment
of the
Tactical Environmental Support System Next Century
[TESS(NC)]
Meteorology and Oceanography (METOC) Database

Document Version 4.4

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Table of Contents

List of Figures

1 SCOPE

1.1 Identification

These Installation Procedures (IP) describe the installation of the Grid Field Application Program Interface (API) (MAGRID) segment, Version 4.3 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MAGRID segment provides APIs for the storage and retrieval of grid field data. This software is designed to run under the Defense Information Infrastructure (DII) Common Operating Environment (COE), release 3.1, on a Hewlett-Packard computer running HP-UX 10.20 or a personal computer running the Microsoft Windows NT 4.0 operating system with Service Pack 3.

1.2 System Overview

The software described in this document forms a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I — The local data fusion center and principal METOC analysis and forecast system (TESS(NC))
- NITES Version II — The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))
- NITES Version III — The unclassified aviation forecast, briefing, and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))
- NITES Version IV — The Portable subsystem composed of independent Personal Computers (PCs)/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))
- NITES Version V — Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users with METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous, networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is composed of six DII COE-compliant *shared database* segments. Associated with each shared database segment is an API segment. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
Latitude-Longitude-Time (LLT) Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Climatology Data	MDCLIM	MACLIM

A typical client-server installation is depicted in Figure 1-1 on the next page. This shows the shared database segments residing on a DII COE database server, with a NITES I or II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using ANSI-standard Structured Query Language (SQL).

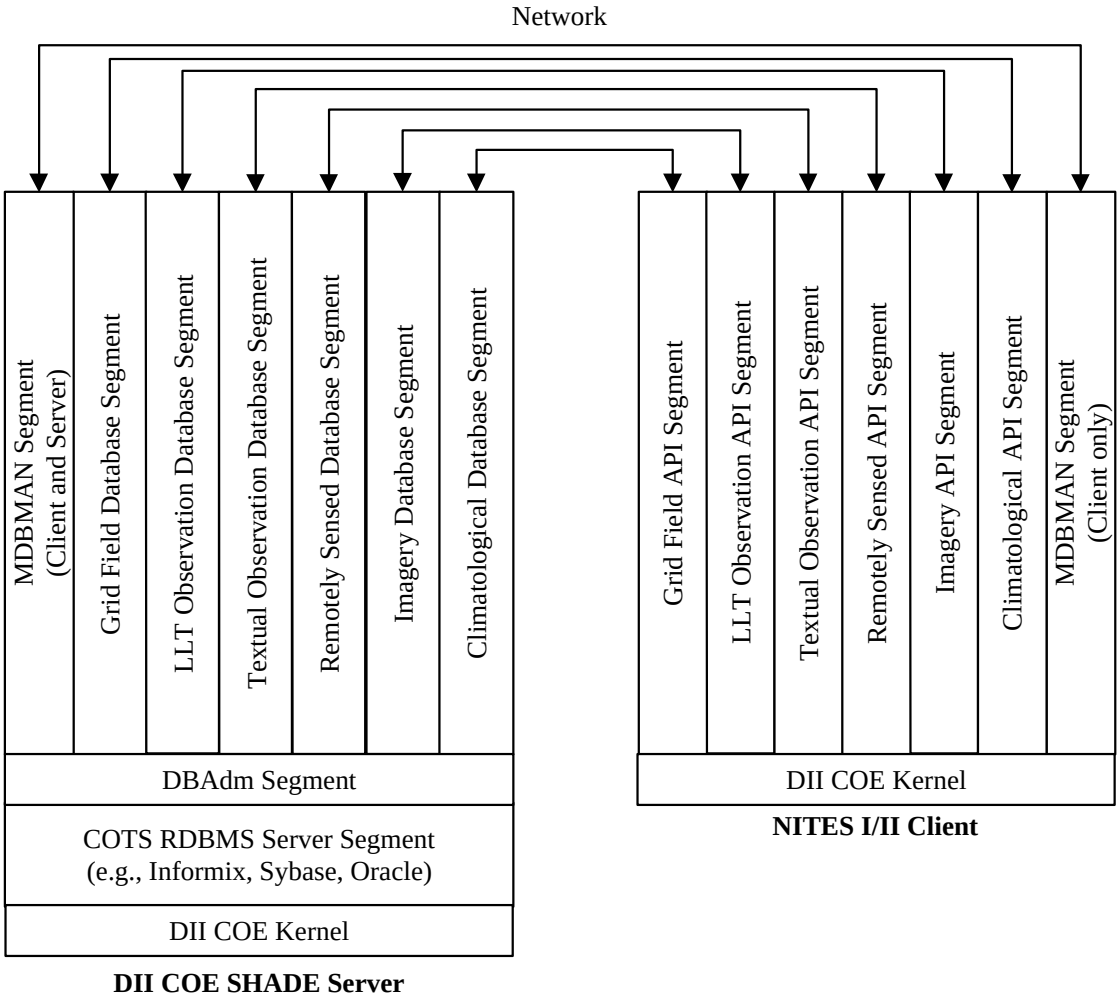

Figure 1-1. TESS(NC) METOC Database Conceptual Organization

The MAGRID segment deals with gridded METOC datasets. These fields provide forecasters with validation information for various atmospheric and oceanographic parameters. A dataset represents a logical collection of discrete grid field data records. The grid data records are logically organized with each other by grid model type and basetime. A grid data record contains descriptive information (element, level, forecast period, etc.) and the actual grid values.

2 REFERENCED DOCUMENTS

2.1 Government Documents

STANDARDS

MIL-STD-498 5 December 1994	*Software Development and Documentation*

SPECIFICATIONS

Unnumbered 30 September 1997	*Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(3)/NC] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC
Unnumbered 5 December 1997	*Performance Specification (PS) for the Tactical Environmental Support System/Next Century TESS(3)/NC (AN/UMK-3)*

OTHER DOCUMENTS

Unnumbered 02 January 1996	*GRIB (Edition 1)* *The WMO Format for the Storage of Weather Product Information and the Exchange of Weather Product Messages in Gridded Binary Form* U.S. Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Centers for Environmental Prediction Clifford H. Dey NCEP Central Operations
DII.COE.DocReqs-5 29 April 1997	*Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 1.0*

DII.3010.HP1020.KernelP1.IG-1 9 May 1997	*DII COE Kernel 3.0.1.0P1 Patch 1 for HP-UX 10.20 Installation Guide*
DII.COE31.HP10.20.CIP 23 May 1997	*DII COE V3.1 HP 10.20 Consolidated Installation Procedures*
DII.3010.HP1020.KernelP2.IG-1 30 July 1997	*DII COE Kernel 3.0.1.0P2 Patch 2 for HP-UX 10.20 Installation Guide*
DII.3010.HP1020.KernelP3.IG-1 08 August 1997	*DII COE Kernel 3.0.1.0P3 Patch 3 for HP-UX 10.20 Installation Guide*
DII.3010.HP1020.KernelP4.IG-1 27 August 1997	*DII COE Kernel 3.0.1.0P4 Patch 4 for HP-UX 10.20 Installation Guide*
Unnumbered 30 September 1997	*Database Design Description for the Tactical Environmental Support System/Next Century [TESS(3)/NC)] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC
ipd4600magridrmTES-10 29 January 1999	*Application Program Interface Reference Manual (APIRM) for the Grid Field API (MAGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd4600magridpmTES-10 29 January 1999	*Programming Manual (PM) for the Grid Field API (MAGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd4400magridsvdTES-10 29 January 1999	*Software Version Description (SVD) for the Grid Field API (MAGRID) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*

2.2 Non-Government Documents

World Meteorological Organization, Geneva, Switzerland

WMO-306	*Manual On Codes*

3 SYSTEM ENVIRONMENT

3.1 System Requirements

3.1.1 Hardware Requirements

The MAGRID segment is hosted on the following hardware:

- Tactical Advanced Computer, TAC-3 (HP 750/755)/TAC-4 (HP J210)
- IBM-Compatible PC

The following configurations are recommended:

- TAC-3/TAC-4: RAM: 128 MB minimum, 192 MB optimum
  Disk Space: 2 GB
  Swap Space: 300 MB
- PC: RAM: 32 MB minimum, 128 MB optimum
  Disk Space: 2 GB

3.1.2 Operating System Requirements

- TAC-3/TAC-4: HP-UX 10.20
- PC: Windows NT 4.0 with Service Pack 3

3.1.3 Kernel Requirements

- TAC-3/TAC-4: Kernel 3.0.1.0 with patches through P4
- PC: N/A

3.2 System and Site Preparations

3.2.1 System Configuration

The following software must be properly installed prior to loading the MAGRID segment:

- Appropriate operating system (as described above)

TAC-3/TAC-4:

- Appropriate DII COE Kernel (as described above)
- DII COE Informix Connect Segment (INFXCN), version 1.0.1.0/7.22

Windows NT:

- Informix Connect, version 7.23
- Grid Field Database (MDGRID) Segment installed on a DII COE database server.

MAGRID uses the following environment variables related to the Informix installation:

- `INFORMIXSERVER` Identifies the Informix server, typically set to `online_coe`
- `INFORMIXDIR` Path to the Informix software, typically `/opt/informix`

The path specified in the `INFORMIXDIR` variable should also be included in the system's PATH variable.

3.2.2 Operating System Preparation

Information needed to prepare the operating system is found in these documents:

TAC-3/TAC-4:

- DII COE V3.1 HP 10.20 Consolidated Installation Procedures
- DII COE Kernel 3.0.1.0P1 Patch 1 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P2 Patch 2 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P3 Patch 3 for HP-UX 10.20 Installation Guide
- DII COE Kernel 3.0.1.0P4 Patch 4 for HP-UX 10.20 Installation Guide

Windows NT:

- Windows NT 4.0 with Service Pack 3

3.2.3 Tape/Disk Preparation

The MAGRID segment software is delivered as follows:

- 4-mm Digital Audio Tape (DAT) cartridge for the TAC-3/TAC-4 hardware environment
- 3.5" high-density floppy disk(s) for the PC hardware environment

4 INSTALLATION INSTRUCTIONS

MAGRID is a component of a DII COE database system. The following procedures describe the installation of the MAGRID software.

4.1 Installation on TAC-3/TAC-4 Systems

4.1.1 Media Booting Procedures for TAC-3/TAC-4 Systems

To prepare a tape for installation:

1. Insert the tape in the DAT drive.
2. Log in as sysadmin.
3. Select the System Administration SEGMENT INSTALLER utility under the **Software** pull-down menu.
4. Select the source and click the **Read Contents** button. The contents of the tape appear in the SELECT SOFTWARE TO INSTALL portion of the SEGMENT INSTALLER window.

4.1.2 Installation Procedures for TAC-3/TAC-4 Systems

(Note: Prior to segment installation, ensure that no existing MAGRID segment is installed on the target platform. If so, select the MAGRID segment in the CURRENTLY INSTALLED SEGMENTS section of the window. Select the **Deinstall** button and follow the instructions on the screen to remove the MAGRID segment.)

To install the MAGRID software:

1. First ensure that the operating system (OS) and Kernel, with all patches, are installed. Instructions for installing the OS, Kernel, and patches are contained in the HP-UX documentation cited in Section 3.2.2.
2. Install the MAGRID segment from the installation tape.
   - Highlight **METOC Grid API Segment**.
   - Click the **Install** button.
3. The INSTALL STATUS dialog box will appear, which will give software loading status in a % format.

4. Once the installation is complete, the SEGMENT INSTALLER window will appear. The **METOC Grid API Segment** will be displayed in the CURRENTLY INSTALLED SEGMENTS section of the window.

4.2 Installation on Windows NT Systems

4.2.1 Media Booting Procedures for Windows NT Systems

1. Insert floppy disk #1 containing the MAGRID software into the disk drive. The InstallShield process will prompt the user for the remaining floppy disks as needed.

2. Click on the **Start** button at the lower left side of the screen.

3. Click on **Settings**.

4. Click on **Control Panel**.

5. Click on **Add/Remove Programs**.

6. Ensure that the **Install/Uninstall** tab is selected, and click on the **Install** button. (Note: Prior to segment installation, ensure that no existing MAGRID segment is installed on the target platform. If so, select the MAGRID segment in the list provided on the window. Select the **Add/Remove** button and confirm the removal of the MAGRID segment.)

7. Click on the **Next** button.

8. The Command Line box in the next dialog should show `A:\SETUP.EXE`. If it does, click the **Finish** button to commence installation.

4.2.2 Installation on Windows NT Systems

The InstallShield installation program will assist you in performing the installation.

1. Upon execution of the `setup` file, a Welcome window will appear to start the installation process. Click on the **Next** button.

2. A Choose Destination window will appear; select the **Next** button to accept the default (\h) settings. Follow the directions as described on the MAGRID Installation window. Insert the remaining disks as requested, and confirm by selecting **OK** in the Setup Needs The Next Disk dialog box.

3. At the final window, click on the **Finish** button, and close any windows that remain open.

4.3 Installation of Upgrades

Installation of upgrades will generally follow the same procedures listed above.

4.4 Installation Verification

All successfully installed segments are listed in the CURRENTLY INSTALLED SEGMENTS portion of the INSTALLER window on TAC-3/TAC-4 systems. For Windows NT systems, the Windows NT Add/Remove Programs under the Control Panel can be used to verify the presence of the software in the directories to which it was installed.

4.5 Initializing the Software

This section is tailored out. No initialization of the software is required.

4.6 List of Changes and Enhancements

This section is tailored out. Discussion of MAGRID features may be found in the MAGRID API Reference Manual and Programming Manual, cited in Section 2.

4.7 Important Considerations

This section is tailored out.

5 NOTES

5.1 Glossary of Acronyms

AESS	Allied Environmental Support System
API	Application Program Interface
APIRM	API Reference Manual
COE	Common Operating Environment
DAT	Digital Audio Tape
DII	Defense Information Infrastructure
GCCS	Global Command and Control System
IC4ISR	Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance
IMOSS	Interim Mobil Oceanographic Support System
INFXCN	Informix Connect Segment
IP	Installation Procedures
JMCIS	Joint Maritime Command Information System
JMS	Joint METOC Segment
LLT	Latitude-Longitude-Time
MAGRID	Grid Field API Segment of the TESS(NC) METOC Database
MDGRID	Grid Field Database Segment of the TESS(NC) METOC Database
METOC	Meteorology and Oceanography
MIDDS	Meteorological Integrated Data Display System
NITES	Navy Integrated Tactical Environmental Subsystem
OS	Operating System

PC	Personal Computer
PM	Programming Manual
PS	Performance Specification
SQL	Structured Query Language
SVD	Software Version Description
TESS(NC)	Tactical Environmental Support System Next Century